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# Transcript Exhibit(s)

Docket #(s): RR-03639A-11-0196

Exhibit # : A1-A5, S1

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Arizona Corporation Commission
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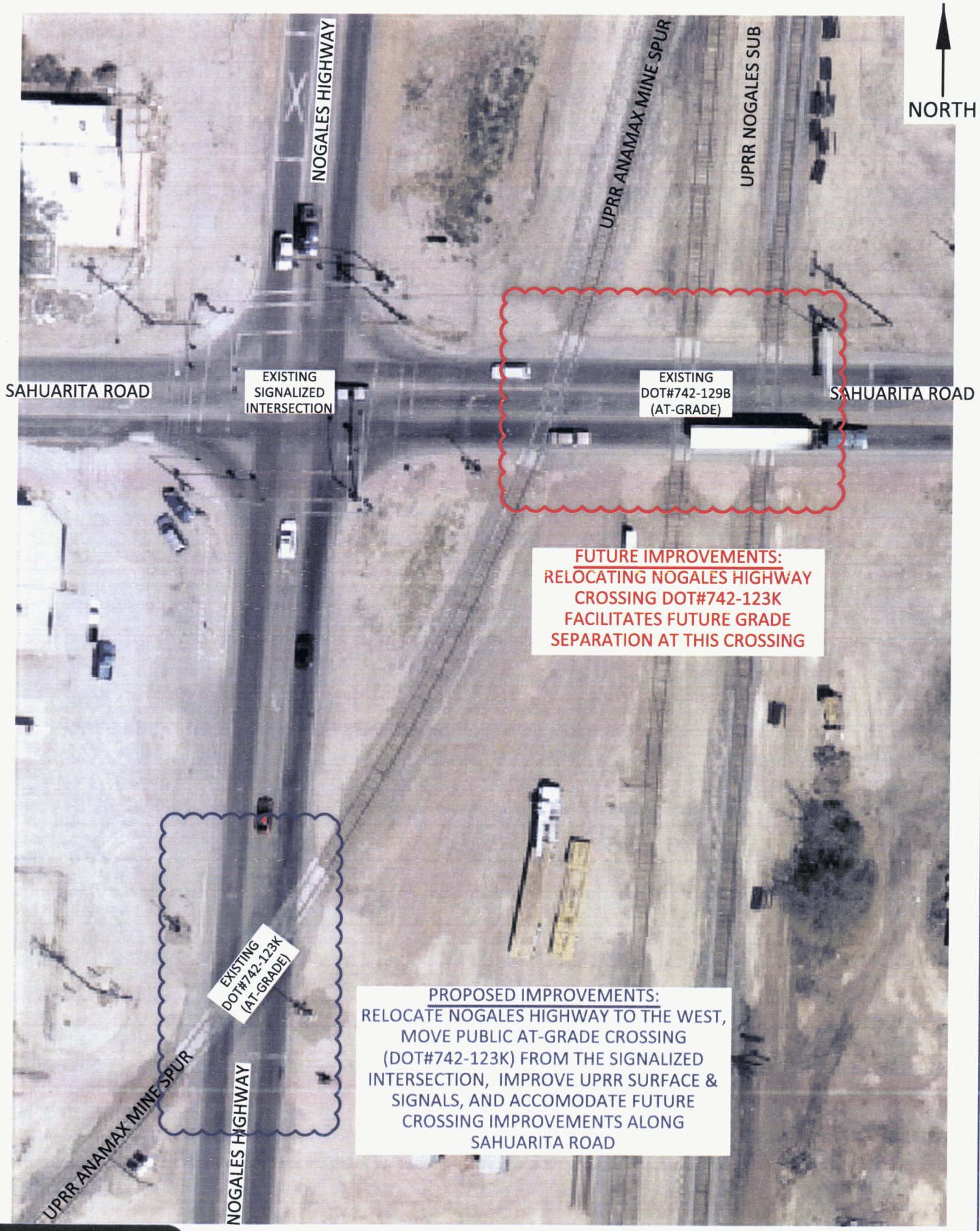


# EXHIBIT A - EXISTING CONDITION MAP

*ACC Hearing - August 18, 2011*

EXHIBIT
A-1
ADMITTED

EXHIBIT B - ACC HEARING, AUGUST 18, 2011

# SAHUARITA ROAD PHASE 2 FOOTPRINT - JUNE 2011

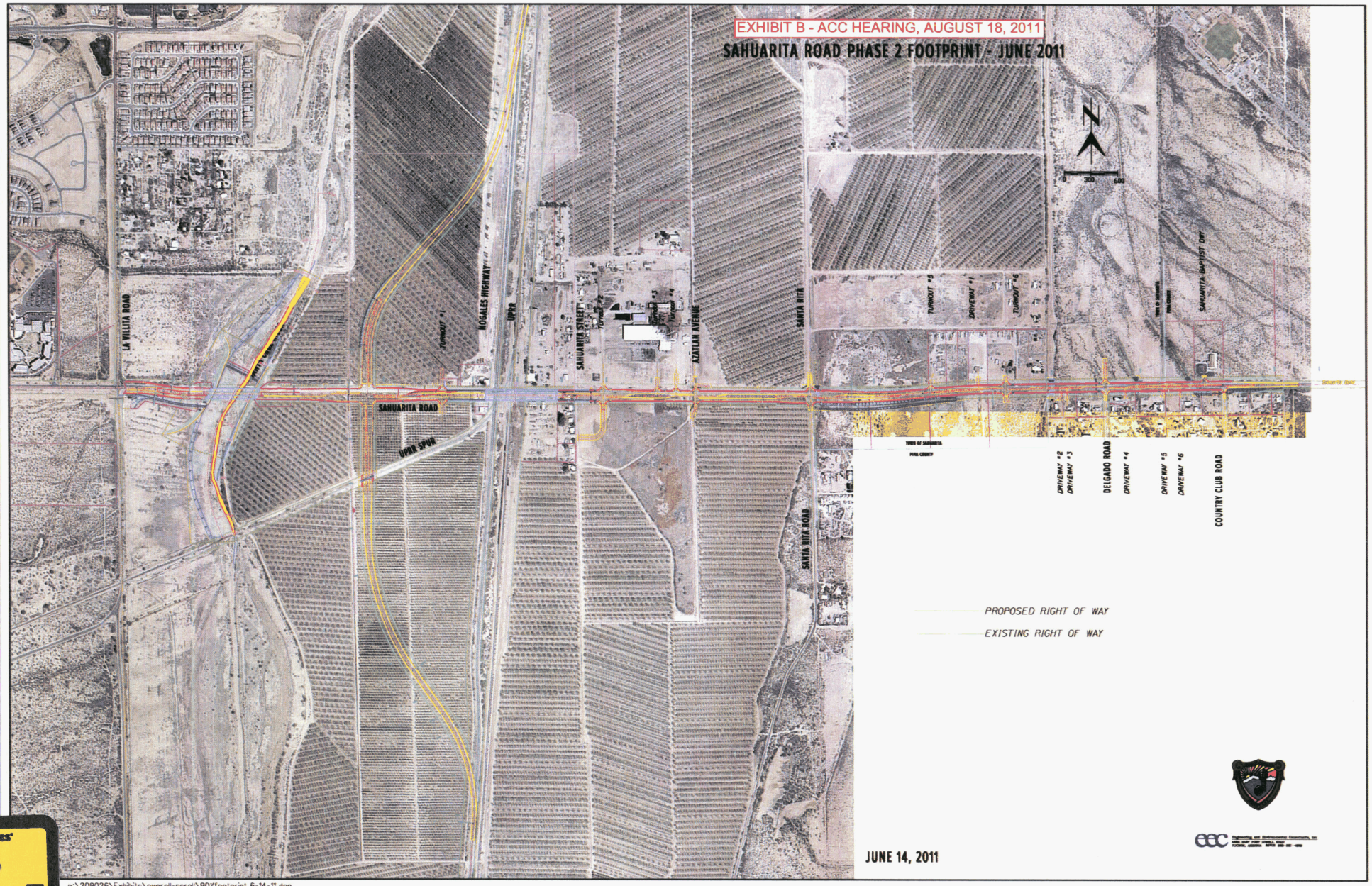


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EXHIBIT
D-2
ADMITTED

EXHIBIT C - ACC HEARING, AUGUST 18, 2011

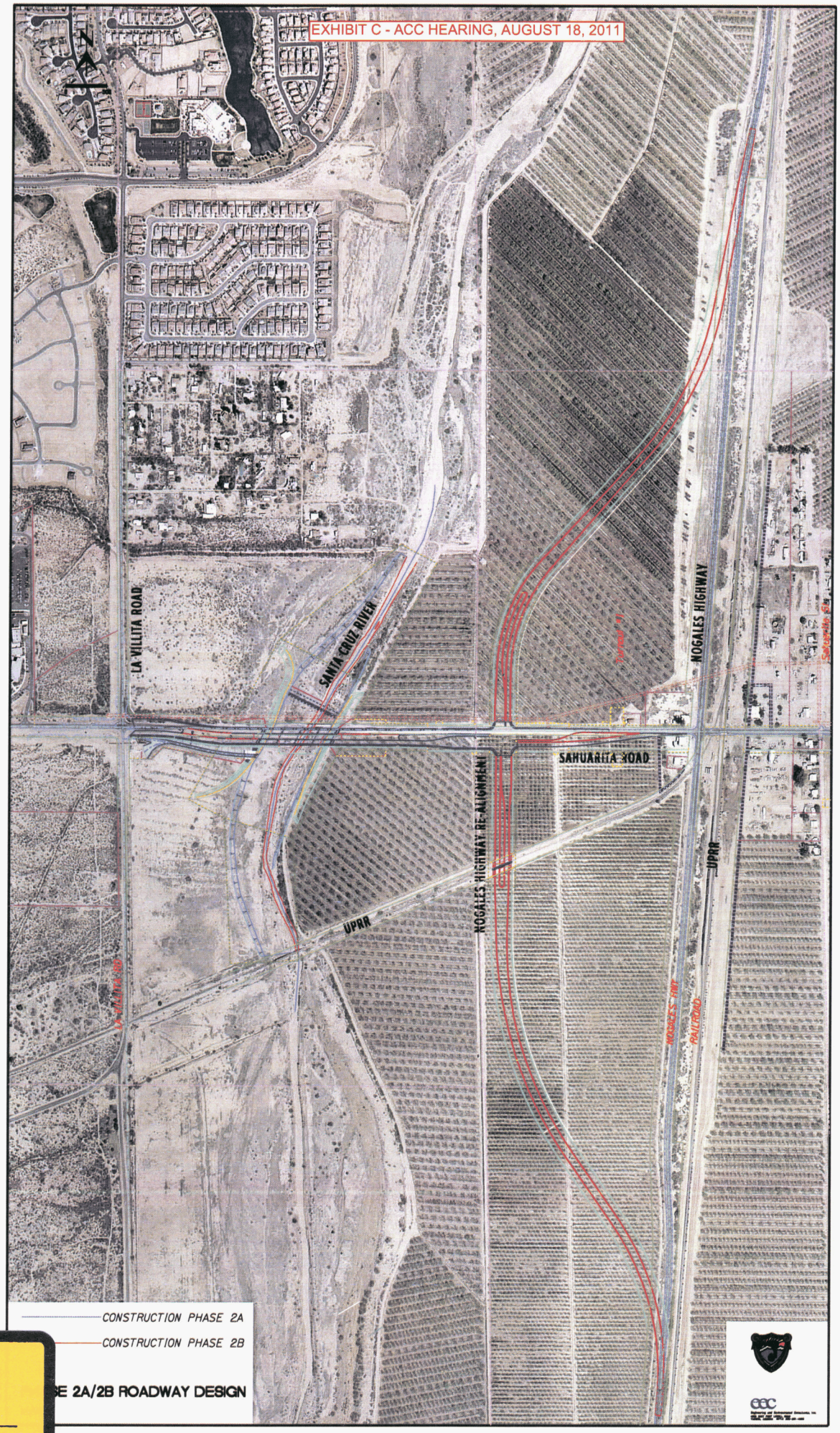


EXHIBIT
A-3
ADMITTED

EXIST. SIGNALIZED TRAFFIC INTERSECTION
SAHUARITA RD/NOGALES HWY
(SEE EXHIBIT A)

SAHUARITA ROAD

DOT#742-129B

DOT#742-123K

NORTH

0' 100' 300'
50' 200'

EXISTING NOGALES HIGHWAY
PUBLIC AT-GRADE CROSSING
DOT#742-123K, UPRR MP 1002.85

NEW NOGALES HIGHWAY
(REALIGNMENT)

UPRR ANAMAX MINE SPUR

NOGALES HIGHWAY
(TO BE ABANDONED)

EXISTING SAHUARITA ROAD
PUBLIC AT-GRADE CROSSING
DOT#742-129B, UPRR MP 18.55

RELOCATING NOGALES HIGHWAY CROSSING DOT#742-123K FACILITATES FUTURE GRADE SEPARATION AT THIS CROSSING

RELOCATE AND IMPROVE
PUBLIC AT-GRADE CROSSING
DOT#742-123K, UPRR MP 18.85
TO MATCH REALIGNED
NOGALES HIGHWAY

DOT#742-123K
(RELOCATED)

SEE EXHIBIT E FOR UPRR AT-GRADE CROSSING IMPROVEMENTS PERTAINING TO THIS ACC APPLICATION

## SAHUARITA ROAD PHASE II: ANTICIPATED IMPLEMENTATION SCHEDULE

1. INITIAL CONSTRUCTION PROJECT A - WIDEN SAHUARITA ROAD FROM LA VILLITA ROAD TO NEW NOGALES HIGHWAY ALIGNMENT. SAHUARITA ROAD WILL TAPER BACK TO EXISTING CONDITIONS TO MATCH EXISTING NOGALES HIGHWAY TRAFFIC SIGNAL AND UPRR AT-GRADE CROSSING DOT #742-129B

2. INITIAL CONSTRUCTION PROJECT B - CONSTRUCT REALIGNMENT OF NOGALES HIGHWAY AND ESTABLISH NEW SAHUARITA ROAD INTERSECTION AND TRAFFIC SIGNAL. CONSTRUCTION TO INCLUDE RELOCATED AT-GRADE CROSSING IMPROVEMENTS AT ANAMAX SPUR LINE. ONCE THE NEW INTERSECTION, TRAFFIC SIGNAL, AND RELOCATED AT-GRADE CROSSING ARE IN PLACE, ALL TRAFFIC CAN BE MOVED FROM THE EXISTING NOGALES HIGHWAY AND ELIMINATE TRAFFIC AT THE EXISTING SAHUARITA ROAD INTERSECTION & EXISTING DOT CROSSING #742-123K.

3. FUTURE CONSTRUCTION PROJECT - WIDEN SAHUARITA ROAD FROM NEW NOGALES HIGHWAY INTERSECTION TO EASTERN TOWN LIMITS. GRADE SEPARATE SAHUARITA ROAD OVER THE EXISTING UPRR NOGALES SUBDIVISION TRACKS (DOT CROSSING #742-129B)

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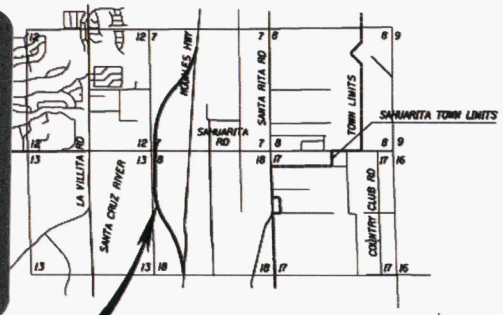
EXHIBIT
D-4
ADMITTED

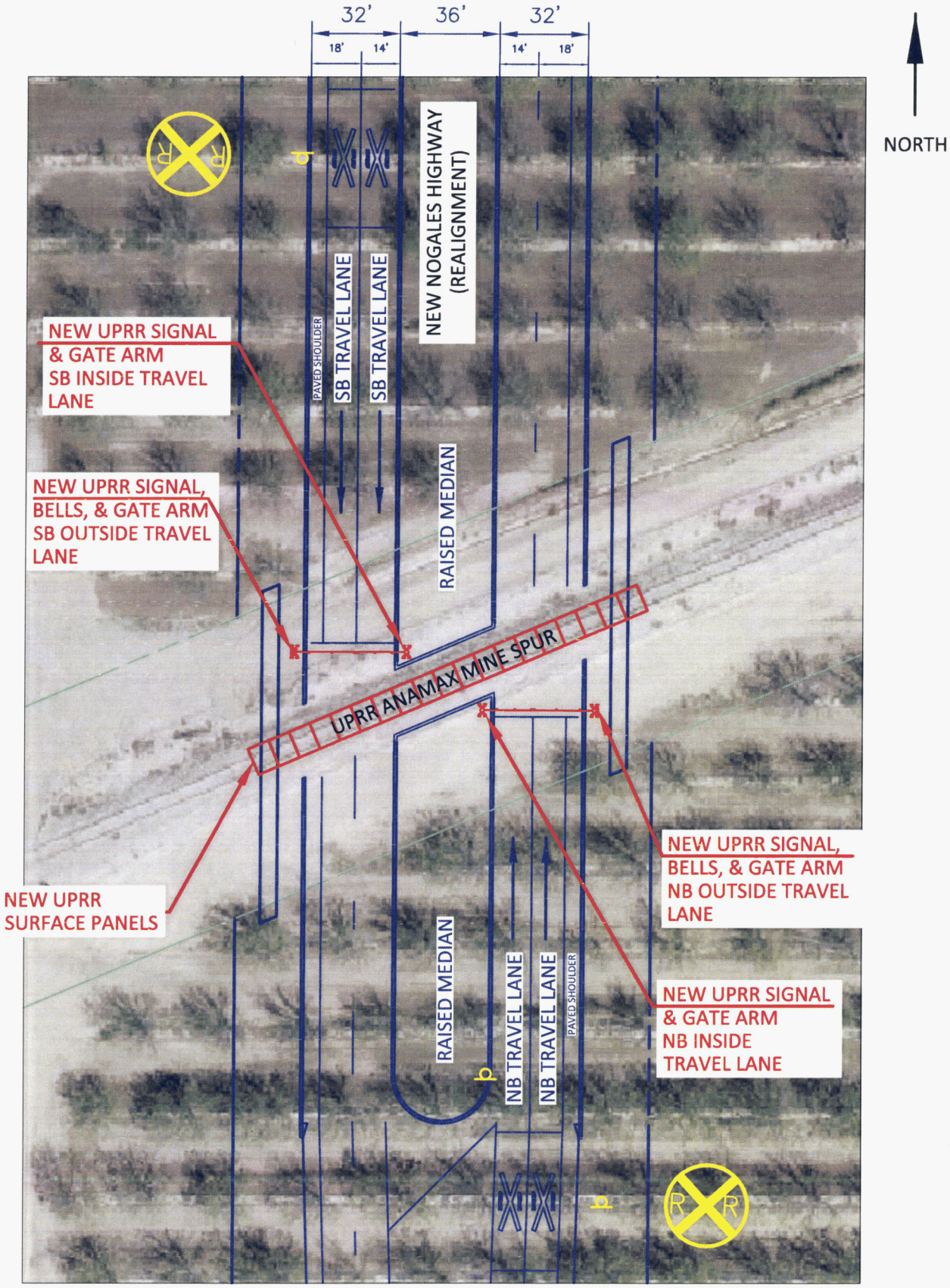



THIS PROJECT

VICINITY MAP
SECTIONS 7 & 18
T17S, R14E, G&SRM

N

# EXHIBIT D - CROSSING LOCATION MAP




# EXHIBIT E - AT-GRADE CROSSING CONFIGURATION

EXHIBIT
A-5
ADMITTED

*ACC Hearing - August 18, 2011*

ORIGINAL

# MEMORANDUM

To: THE COMMISSION

From: Steven M. Olea
Interim Director
Safety Division

Date: July 25, 2011

Arizona Corporation Commission
DOCKETED
JUL 25 2011
DOCKETED BY

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AZ CORP COMMISSION
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RE: IN THE MATTER OF THE APPLICATION OF THE TOWN OF SAHUARITA TO UPGRADE A CROSSING OF THE UNION PACIFIC RAILROAD AT NOGALES HIGHWAY IN THE TOWN OF SAHUARITA, PIMA COUNTY, ARIZONA, USDOT NO. 742-123-K.

DOCKET NO. RR-03639A-11-0196

**Background**

On May 11, 2011, the Town of Sahuarita ("Town") filed with the Arizona Corporation Commission ("Commission") an application for approval for the Union Pacific Railroad ("Railroad") to install a new crossing at the realigned Nogales Highway in the Town, Pima County, Arizona at USDOT No. 742-123-K.

**Geographical Information**

The Town was officially incorporated in 1994. According to the U.S. Census Bureau the population of the Town in April of 2000 was 3,242. As of July 2011, the population of the Town has grown to 25,659 residents. The Town is located in the historic Santa Cruz Valley.

The Nogales Highway crossing is located on the Anamax Mine Spur, which runs in an east to west direction. The Anamax Mine Spur is accessed by a track switch from the Nogales Subdivision line, which runs in a north south direction from Tucson to Nogales. (See Appendix "A")

The Town, Railroad and the Commission's Railroad Safety Section ("Staff") have met several times since 2007 regarding this project. Most recently, a field diagnostic meeting was held at the project site on September 9, 2010.

**NOGALES HIGHWAY**

Nogales Highway is a paved two lane roadway at the railroad crossing. As part of the Sahuarita Road Phase II project, Nogales Highway will be realigned 750 feet west of its current location to facilitate a separate/future Sahuarita Road grade-separated crossing of the Railroad's Nogales Subdivision tracks. The existing Nogales Highway at-grade crossing will be relocated and improved to match the new location of the realigned Nogales Highway. Once the realignment is completed, the existing at-grade crossing will be removed. The Railroad has provided a new railroad milepost of 18.85 on the Anamax Mine Spur for the new crossing location. The new Nogales Highway will be widened to accommodate raised medians, four

EXHIBIT S-1 ADMITTED

travel lanes, two north bound and two south bound, paved shoulders, curb, and sidewalks in the vicinity of the railroad crossing. All new state of the art warning devices will be installed at the relocated crossing and will include: LED flashing lights, curbside and median gates, bells and a new concrete surface.

This project is being funded by the Town as part of its five year Capitol Improvement Plan ("CIP"). The funding covers both the roadway and railroad crossing improvements. The at-grade crossing improvements at the realigned Nogales Highway are estimated at $601,476. The total cost includes $301,476 for the signal equipment and $300,000 for surface improvements.

According to the Town, the Average Daily Traffic ("ADT") in 2009 was 10,800 vehicles per day ("vpd"). Projected ADT's for the year 2030 are 24,600 vpd. The current Level of Service ("LOS") for this two lane road is LOS B.

**Note:** The American Association of State Highway and Transportation Officials (AASHTO) Geometric Design of Highways and Streets, 2004, states that the Level of Service characterizes the operating conditions on a facility in terms of traffic performance measures related to speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. This is a measure of roadway congestion ranging from LOS A--least congested--to LOS F--most congested. LOS is one of the most common terms used to describe how "good" or how "bad" traffic is projected to be.

The posted speed limit on Nogales Highway is 45 MPH and will continue to be 45 MPH on the realigned portion. Staff accident/incident records indicate two incidents at the existing crossing with no injuries and one fatality, while Federal Railroad Administration ("FRA") records indicate no incidents at the crossing. The first incident that Staff records indicate was on November 8, 1973, and resulted in a fatality. The second incident occurred on January 2, 1974, with no injuries or fatalities. Records indicate the warning devices were reported to be working as intended in both accidents.

Alternative routes from this crossing are as follows: Sahuarita Road is located approximately 1,000 feet north-east of the realigned crossing, and La Villita Road is located approximately 3910 feet south-west of the crossing.

## Train Data

Data provided by the Town regarding train movements through this crossing are as follows:

**Train Count:** 2 total average trains per day
**Train Speed:** 10 mph freight
**Thru Freight/Switching Moves:** All moves through this crossing are thru freight.
This is not a passenger train route.

## Schools and Bus Routes

The existing Sahuarita Unified School District ("SUSD") Campus includes a Primary School, Intermediate School, Middle School and a High School that is located approximately 1.2 miles north-west of the crossing at 350 W. Sahuarita Road. A new SUSD high school is also

planned to open in the fall of 2011 and will be located 2.2 miles north-east of the new crossing at 15510 S. Sahuarita Park Road.

The SUSD indicates its buses will utilize this crossing 12 times a day, each school day.

**Hospitals**

There are no hospitals in the vicinity of the crossing. Use by emergency vehicles is typical of other areas/roads around the Town.

**Hazardous Materials**

The Town gave the following response when asked about hazardous materials crossing this crossing:

***There are no regular occurrences of hazardous material vehicles utilizing the Nogales Highway crossing, to the Town's knowledge.***

**Zoning**

Staff requested that the Town provide information regarding the type of zoning in adjacent areas from the crossing. The following was its response:

***The areas north-west, south-west, and south-east of the crossing are zoned RH (Rural Homestead) and are currently an exclusive agriculture use within the Santa Cruz River floodplain. The properties include existing pecan tree orchards operated by Farmers Investment Co. (FICO).***

***The areas north-east and east of the crossing are zoned GR-1 (Rural Residential) and CI-1 (Light Industrial/Warehousing) and currently include FICO offices, processing facilities, maintenance facilities, and employee housing units.***

***There is a small parcel 1.86 acres north of the crossing that is zoned CB-2 (General Business). The building on the parcel is vacant and no business is occurring at the location.***

***The UPRR Nogales Subdivision ROW adjacent to and east of the crossing is zoned CI-2 (General Industrial).***

**FHWA Guidelines Regarding Grade Separation**

The FHWA Railroad-Highway Grade Crossing Handbook (Revised Second Edition August 2007) provides nine criteria for determining whether highway-rail crossings should be considered for grade separation or otherwise eliminated across the railroad right of way. The Crossing Handbook indicates that grade separation or crossing elimination should be considered whenever one or more of the nine conditions are met. The nine criteria are applied to this crossing application as follows:

| | | Nogales Highway |
|---|---|---|
| The highway is a part of the designated Interstate Highway System | Crossing Currently meets the criteria | No |
| | Crossing meets the criteria by 2030 | No |
| The highway is otherwise designed to have full controlled access | Crossing Currently meets the criteria | No |
| | Crossing meets the criteria by 2030 | No |
| The posted highway speed equals or exceeds 70 mph | Crossing Currently meets the criteria | No |
| | Crossing meets the criteria by 2030 | No |
| AADT exceeds 100,000 in urban areas or 50,000 in rural areas | Crossing Currently meets the criteria | No |
| | Crossing meets the criteria by 2030 | No |
| Maximum authorized train speed exceeds 110 mph | Crossing Currently meets the criteria | No |
| | Crossing meets the criteria by 2030 | No |
| An average of 150 or more trains per day or 300 million gross tons/year | Crossing Currently meets the criteria | No |
| | Crossing meets the criteria by 2030 | No |
| Crossing exposure (trains/day x AADT) exceeds 1M in urban or 250k in rural; or passenger train crossing exposure exceeds 800k in urban or 200k in rural | Crossing Currently meets the criteria | No |
| | Crossing meets the criteria by 2030 | No |
| Expected accident frequency for active devices with gates, as calculated by the US DOT Accident Prediction Formula including five-year accident history, exceeds 0.5 | Crossing Currently meets the criteria | No |
| | Crossing meets the criteria by 2030 | No |
| Vehicle delay exceeds 40 vehicle hours per day | Crossing Currently meets the criteria | No |
| | Crossing meets the criteria by 2030 | No |

## Spur Lines

The Town gave the following answer regarding spur lines located in the area:

***There have not been any spur lines removed within the area over the last three years, to the Town's knowledge.***

## Grade Separation

The following is the Town's response to grade-separating the Nogales Highway crossing:

***A Nogales Highway grade separated crossing at the Anamax Mine Spur has been eliminated from consideration for the following reasons:***

*It was much more efficient for the Town to relocate Nogales Highway and remove the Nogales Highway at-grade crossing of the Anamax Spur line from the immediate vicinity of the Sahuarita Road intersection. The relocation alone is a substantial safety improvement and provides the most efficient crossing due to extremely low train volumes. In addition, the relocation of Nogales Highway promotes/facilitates a Sahuarita Road grade separated crossing of the UPRR Nogales Subdivision that can be constructed as a future phase of the project. The Sahuarita Road crossing of the UPRR Nogales subdivisions is a higher priority to the Town and UPRR.*

*The Anamax Mine Spur has extremely low train volumes - 2 trains per day cross Nogales Highway (1 arrival trip, 1 return trip). In addition, trips are not on a daily basis as they only serve a specific customer (mining operation) that does not always require daily trips.*

*An overpass structure at the existing crossing location would have to be an interchange styles structure to handle four directions of travel and provide the necessary turning movements from both Sahuarita Road and Nogales Highway. There is very little benefit/efficiency for a Nogales Highway overpass due to the scale of the structure costs and minimal train traffic on the spur-line.*

*Due to existing soil conditions (collapsible clay), the skew of the spur line crossing, and accommodation of Sahuarita Road grade separation, the Nogales Highway bridge structure would need to be approximately 1150' long in order to span a simple 10' railroad spur track.*

*An overpass structure results in significant impact to existing and future land uses. Vertical walls needed for bridge approach eliminates access to/ from Sahuarita Road and Nogales highway for private parcels at all four quadrants. The vertical profile would eliminate access for approximately 1500' along Nogales Highway. Current land uses include major agricultural operations (Farmers Investment Co. – Pecan Orchards).*

*Constructability of an elevated intersection of Sahuarita Road and Nogales Highway is very inefficient and would result in major impacts to existing vehicular movements around the Town. The new interchange structure would have to be built on top of (2) existing railroad crossings as well as a signalized traffic intersection of (2) arterial roadways. Significant cost and private property impacts may be required to accommodate the necessary traffic detours and/or road closures to construct an interchange structure.*

*An overpass structure along Nogales Highway would cause significant impacts to existing utilities already located along Nogales Highway. Major relocation would likely be required for several utilities that may include Trico Electric, Tucson Electric Power, Southwest Gas, Qwest Communications, Cox Communications, Farmers Water Co., and Valley Telephone Coop. (Fiber Optic).*

*Additional ROW needs along Nogales Highway would require demolition of additional existing structures at corners of Nogales Highway/Sahuarita Road.*

*An underpass structure was ruled out due to existing floodplain considerations and limits.*

**Crossing Closure**

The area surrounding this crossing is highly developed with both commercial businesses and residential dwellings. To close this crossing would have a negative effect on many of the local businesses and limit access to residences. Therefore, Staff would not recommend closure of this crossing.

**Staff Conclusions**

Having reviewed all applicable data, Staff supports the Town's application. Staff believes the upgrades to the crossing are in the public's interest and are reasonable. Staff believes that the measures proposed by the Town are consistent with other similar at-grade crossings in the State and will provide for the public's safety. Therefore, Staff recommends approval of the Town's application.

Brian H. Lehman
Railroad Safety Supervisor
Safety Division

Originator: BHL

COPIES of the foregoing mailed
This 25th day of July, 2011 to:

Docket No. RR-03639A-11-0196

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